

## § 25.125

## 14 CFR Ch. I (1–1–11 Edition)

a gradient of climb of 0.3 percent for three-engine airplanes and 0.5 percent for four-engine airplanes.

[Docket No. 5066, 29 FR 18291, Dec. 24, 1964, as amended by Amdt. 25–121, 72 FR 44666; Aug. 8, 2007]

### § 25.125 Landing.

(a) The horizontal distance necessary to land and to come to a complete stop (or to a speed of approximately 3 knots for water landings) from a point 50 feet above the landing surface must be determined (for standard temperatures, at each weight, altitude, and wind within the operational limits established by the applicant for the airplane):

(1) In non-icing conditions; and

(2) In icing conditions with the landing ice accretion defined in appendix C if  $V_{REF}$  for icing conditions exceeds  $V_{REF}$  for non-icing conditions by more than 5 knots CAS at the maximum landing weight.

(b) In determining the distance in paragraph (a) of this section:

(1) The airplane must be in the landing configuration.

(2) A stabilized approach, with a calibrated airspeed of not less than  $V_{REF}$ , must be maintained down to the 50-foot height.

(i) In non-icing conditions,  $V_{REF}$  may not be less than:

(A)  $1.23 V_{SR0}$ ;

(B)  $V_{MCL}$  established under § 25.149(f); and

(C) A speed that provides the maneuvering capability specified in § 25.143(h).

(ii) In icing conditions,  $V_{REF}$  may not be less than:

(A) The speed determined in paragraph (b)(2)(i) of this section;

(B)  $1.23 V_{SR0}$  with the landing ice accretion defined in appendix C if that speed exceeds  $V_{REF}$  for non-icing conditions by more than 5 knots CAS; and

(C) A speed that provides the maneuvering capability specified in § 25.143(h) with the landing ice accretion defined in appendix C.

(3) Changes in configuration, power or thrust, and speed, must be made in accordance with the established procedures for service operation.

(4) The landing must be made without excessive vertical acceleration,

tendency to bounce, nose over, ground loop, porpoise, or water loop.

(5) The landings may not require exceptional piloting skill or alertness.

(c) For landplanes and amphibians, the landing distance on land must be determined on a level, smooth, dry, hard-surfaced runway. In addition—

(1) The pressures on the wheel braking systems may not exceed those specified by the brake manufacturer;

(2) The brakes may not be used so as to cause excessive wear of brakes or tires; and

(3) Means other than wheel brakes may be used if that means—

(i) Is safe and reliable;

(ii) Is used so that consistent results can be expected in service; and

(iii) Is such that exceptional skill is not required to control the airplane.

(d) For seaplanes and amphibians, the landing distance on water must be determined on smooth water.

(e) For skiplanes, the landing distance on snow must be determined on smooth, dry, snow.

(f) The landing distance data must include correction factors for not more than 50 percent of the nominal wind components along the landing path opposite to the direction of landing, and not less than 150 percent of the nominal wind components along the landing path in the direction of landing.

(g) If any device is used that depends on the operation of any engine, and if the landing distance would be noticeably increased when a landing is made with that engine inoperative, the landing distance must be determined with that engine inoperative unless the use of compensating means will result in a landing distance not more than that with each engine operating.

[Amdt. 25–121, 72 FR 44666; Aug. 8, 2007; 72 FR 50467, Aug. 31, 2007]

### CONTROLLABILITY AND MANEUVERABILITY

### § 25.143 General.

(a) The airplane must be safely controllable and maneuverable during—

(1) Takeoff;

(2) Climb;

(3) Level flight;

(4) Descent; and

(5) Landing.